



# SANTA SUSANA FIELD LABORATORY

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • November 2012

## EPA Radiological Characterization Study Results

The U.S. Environmental Protection Agency (EPA) has completed its investigation of potential radiological contamination at Area IV and the Northern Buffer Zone (NBZ) of the Santa Susana Field Laboratory (SSFL), which borders Ventura and Los Angeles Counties.

The EPA invites the public to a community meeting to learn about the final results of this radiological investigation. The meeting will be held on December 12, 2012, from 6:30 to 8:30 pm, at the Grand Vista Hotel, 999 Enchanted Way, Simi Valley.

The California Department of Toxic Substances Control (DTSC) is the lead agency responsible for overseeing cleanup for the entire SSFL site. Although the EPA will document the findings of the radiological characterization study, DTSC will make all cleanup decisions and will oversee the work that will be conducted by the parties responsible for the contamination. Cleanup agreements are in place with the U.S. Department of Energy (DOE), the National Aeronautics and Space Administration (NASA), and The Boeing Company (Boeing) for DTSC to manage the site work to its projected completion in 2017.

### SSFL Community Meeting

**December 12, 2012  
6:30 p.m. to 8:30 p.m.**

Grand Vista Hotel  
999 Enchanted Way  
Simi Valley, CA

### Summary

Since EPA's last fact sheet dated May 2012, EPA has completed its field work for this characterization study. EPA collected a total of 3,735 soil and sediment samples, and 215 groundwater and surface water samples. Each sample was analyzed for one or more of 54 radioactive contaminants. EPA expects to have a final soil report identifying potential locations of interest in December 2012. These locations will assist DTSC with focusing future investigations and cleanup efforts.

### EPA's Radiological Investigation Update

All fieldwork is complete and the final Gamma Radiation Scanning Report and final Historical Site Assessment Report were issued in October 2012. These reports, as well as other plans and reports for the investigation, can be accessed by visiting EPA's SSFL webpage, the Information Repositories, or EPA's Superfund Records Center (see contact information on Page 2).

### EPA's Role at SSFL

EPA's role at SSFL was limited to providing technical assistance to DTSC and DOE by conducting an investigation of radiological contamination at Area IV and NBZ, an area bounding the former Rocketdyne test facility, totaling about 470 acres of flat to rough terrain. Historically, ten small nuclear research reactors were operated on-site to support the United States space program and for commercial applications.

In 2009, at the request of the State of California and the community, EPA received \$41.5 million of DOE and Recovery Act Funds to conduct one of the most comprehensive technical investigations ever undertaken for low-level radioactive contamination. The state requested the identification of areas, within the scope of the investigation, which exceeded soil background concentrations (called Background Threshold Values). To achieve the State's objective, EPA utilized the latest technology in analytical tools and techniques.

One of EPA's most significant challenges was to distinguish the difference between naturally occurring and man-made radioactive materials in order to advise DTSC about areas of potential interest. Another challenge was securing analytical laboratory services that could measure very low levels of radioactive contaminants at background concentrations.

## Radiological Sampling Results

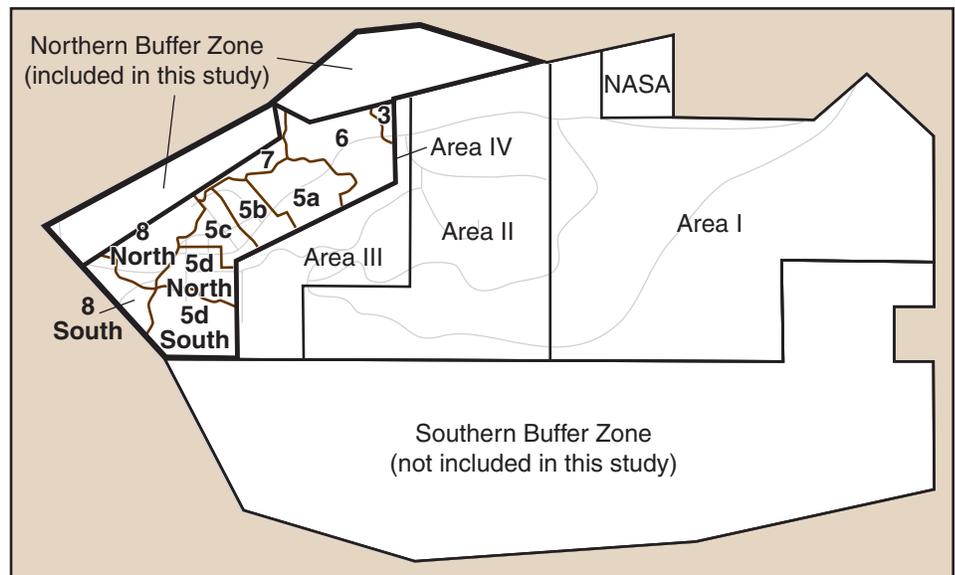
The EPA has collected vast quantities of information to identify potential locations of interest that will require further investigation or cleanup. Potential locations of interest are identified as locations that have one or more sample result greater than background. In accordance with the Administrative Order on Consent (AOC) between DTSC and DOE, locations exceeding DTSC's Radiological Look-Up Table values (based on background) will be cleaned up.

The Look-Up Table is a set of concentrations for radionuclides of concern to compare soil sample results against. After DTSC has developed the Look-Up Table values, following selection of a laboratory to analyze their next round of soil samples, they can determine which of the potential locations of interest identified by the EPA will require cleanup.

Throughout Area IV and the Northern Buffer Zone, a total of 3,735 surface and subsurface soil samples were collected and analyzed for radioactive contaminants. The analytical results were compared to the background levels in accordance with the AOC.



**Figure 2:** Workers conducting subsurface soil sampling in Area IV with a direct push drill rig



**Figure 1:** Santa Susana Field Laboratory Site

Of the total samples collected, a total of 500 samples contained concentrations of radioactive materials exceeding background levels. Many samples contained concentrations of two or more radionuclides that exceed background. Both man-made and naturally occurring radionuclides were detected. Man-made radionuclides were detected in 423 of the 500 samples, with naturally occurring radionuclides detected in 105 of the 500 samples; some samples had both man-made and naturally occurring radionuclides. Most of the detected radioactive contaminants were cesium-137 and strontium-90, both man-made radionuclides.

The majority of the samples containing concentrations exceeding background were found in the surface soil at locations previously suspected of having contamination, such as the Radioactive Materials Handling Facility (RMHF) and the former Sodium Reactor Experiment (SRE). A summary of the preliminary sample results for radionuclides that were detected above background is presented in Table 1. Not all of these samples are contaminated. DTSC will make that determination after they develop the Radiological Look-Up Table values.

## SSFL Site Information Repository

EPA has place paper and/or CD copies of key radiological assessment documents at the following locations:

**Simi Valley Library**  
2969 Tapo Canyon Road  
Simi Valley, California 93063  
(805) 526-1735

**Los Angeles Public Library**  
Platt Branch  
23600 Victory Boulevard  
Woodland Hills, California 91367  
(818) 340-9386

**Department of Toxic Substances Control**  
Chatsworth Office  
9211 Oakdale Avenue  
Chatsworth, California 91311  
Please contact Vivian Tutaan at  
(818) 717-6520 for an appointment

EPA web address:  
<http://www.epa.gov/region09/SantaSusana>



## Next Steps

EPA has met the objectives of this radiological investigation and will complete a final soil report in December 2012. EPA has been transitioning documents and data to DTSC for the next phase of the investigation and cleanup. DTSC will determine which samples are contaminated after they develop Radiological Look-Up Table values.

Additional details on EPA's investigation findings will be provided at the community meeting on December 12, 2012, at the Grand Vista Hotel in Simi Valley from 6:30 p.m. to 8:30 p.m.

For further information about DTSC's current and future efforts at SSFL, please contact Zenzi Poindexter, Public Participation Specialist, at (818) 717-6568 or e-mail her at [zenzi.poindexter@dtsc.ca.gov](mailto:zenzi.poindexter@dtsc.ca.gov).

## Community Involvement Program

In 2012, EPA transitioned its Community Involvement program to DTSC, which now conducts all public engagement activities for the site. For additional information about DTSC's community involvement program, please contact Zenzi Poindexter, Public Participation Specialist, at (818) 717-6568 or e-mail her at [zenzi.poindexter@dtsc.ca.gov](mailto:zenzi.poindexter@dtsc.ca.gov).

EPA has placed project documents and reports in the Information Repositories and on EPA's web site (see information on Page 2). Throughout the transition of this project to DTSC, EPA will remain accessible to the community. To contact EPA directly please use the contact information on the back page or call EPA's toll-free line (800-231-3075).

**Table 1: Preliminary Soil Sample Results Exceeding Background Threshold Values For Area IV and NBZ at SSFL**

Radionuclides	Number of Samples	Activity Range (pCi/g)		Background Threshold Values <sup>(1)</sup> (pCi/g)
		Low	High	
<b>Man-Made Radionuclides</b>				
Americium-241	3	0.0484	0.0589	0.0162
Cesium-137	291	0.194	196	0.193
Cobalt-60	4	0.0228	0.0480	0.00556
Curium-243/244	2	0.0178	0.0647	0.0147
Europium-152	6	0.0460	0.165	0.0169
Europium-154	1	0.136		0.0251
Nickel-59	1	23.9		0.344
Plutonium-238	2	0.0137	0.0492	0.00425
Plutonium-239/240	14	0.0233	0.187	0.0142
Strontium-90	153	0.0750	21.3	0.0750
Tritium	1	7.38		7.38
<b>Total samples with one man-made radionuclide above background</b>				<b>370</b>
<b>Total samples with more than one man-made radionuclide above background</b>				<b>53</b>
<b>Naturally Occurring Radionuclides</b>				
Actinium-227	9	0.273	0.377	0.127
Actinium-228	25	2.30	3.64	2.30
Bismuth-212	10	2.08	2.74	2.04
Bismuth-214	61	1.58	3.49	1.57
Lead-212	26	2.69	4.56	2.67
Lead-214	70	1.68	3.87	1.68
Potassium-40	1	31.5		30.5
Radium-226	1	2.08		1.88
Thallium-208	16	0.937	1.43	0.923
Thorium-228	2	3.70	3.97	3.67
Thorium-230	7	2.05	3.88	2.04
Thorium-232	5	2.99	3.34	2.95
Thorium-234	17	3.15	4.35	3.04
Uranium-233/234	23	1.88	4.09	1.87
Uranium-235/236	14	0.131	0.304	0.130
Uranium-238	29	1.68	2.67	1.68
<b>Total samples with one naturally occurring radionuclide above background</b>				<b>31</b>
<b>Total samples with more than one naturally occurring radionuclide above background</b>				<b>74</b>

(1) HydroGeoLogic, Inc. (HGL), 2011. Final Radiological Background Study Report, Santa Susana Field Laboratory, Ventura County, California. October.



# Santa Susana Field Laboratory

## EPA Radiological Characterization Study Results

### EPA Point of Contacts

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**U.S. EPA, Region 9**

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EPA's toll free message line **(800) 231-3075**. Please leave a message and your call will be return.



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